

Work Order ID 145190

May 04, 2016 11:16:00 AM

145190

Step Adaption kit added

Page 1

Item ID: D205-634-041

Revision ID:

Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016 Start Qty: 1.00 *1*

Required Date: 5/12/2016 Req'd Qty: 1.00 *1*

Reference:

Approvals:

Process Plan: *SLH*

Date: *20160503*

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

NR1

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2580-041

G

100

Document Control

0.00

100

DC

Doc.Control -USB or Paperwork

DOCUMENT CONTROL

Memo

0.00

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG005

DAS
28
9-00

MAY 17 2016

110

110

CNC Bend 1

CNC Delta 100 Bender

BENDING MACHINE - SKIDTUBES

0.10

Memo

0.40

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

DP 16-5-12

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 145190

May 04, 2016 11:16:00 AM

145190

Page 2

Item ID: D205-634-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 5/12/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

0.00

120

Skid tubes

Skid tubes

Memo

1- Deburr ends and remove bending marks

2- Prepare tube for welding as per QSI 004

1.26

130

0.00

130

QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.02

DAS
18
9-89

1 16-05-12

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																																													
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Page 3

Item ID: D205-634-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 5/12/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

0.00

140

Skidtubes

Skidtubes

Memo

1.53

1-Weld step D2576 as per Dwg. D2580 and OSI 004
A/R Aluminum Rod *M34412*

2-Grind welds on step as per Dwg D2580

3- Insert D4202-1 spacer, swage as per OSI002 and trim/ grind flush per OSI002
and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start
expantion and finish with 1/2 x 18G to achieve dwg dimention.4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd
saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit
web.Deburr

6-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr

7-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr

8-Drill holes for electric step adaption kit using DT8393-1/2/3 as per D412-673

*78E16-05-12**16-5-12*

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																											
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145190

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Item ID: D205-634-041 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH
 Start Date: 5/4/2016 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 5/12/2016 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC10- Inspect visual per QSI004- ground welds	0.00							
150									
QC	Memo	0.00							
Quality Control									
160	QC5- Inspect part completeness to step on W/O	0.00							
160									
QC	Memo	0.02							
Quality Control									
170	Pressure Wash per QSI005 4.3	0.00							
170									
HandFinish	Memo	0.52							
Hand Finishing	Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd 16-5-12 AK								

Place bushing D3620-1 2 places, apply sikaflex M 134492 16/1 K

Install D2913 Doubler along with hardware per D412-673

Seq 200
 16-05-13

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Work Order ID 145190

May 04, 2016 11:16:01 AM

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Page 5

Item ID: D205-634-041 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH
 Start Date: 5/4/2016 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 5/12/2016 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum <i>m 134631.</i> Memo START TIME: <i>9:05</i> OVEN TEMPERATURE: <i>320°</i> FINISH TIME: <i>9:35</i>	0.00 0.31				<i>1</i>	<i>0</i>	<i>16-05-13</i>	<i>23</i>
190 *190* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.01				<i>1x</i>	<i>0</i>	<i>SL 16/05/16</i>	<i>68-6</i> <i>SL</i> <i>DAS</i>

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

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Work Order ID 145190

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Item ID: D205-634-041 Accept *N900040100* Setup Start *NS1*

Revision ID: Stop *NS2*

Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016 Start Qty: 1.00 *1* Cust Item ID:

Required Date: 5/12/2016 Req'd Qty: 1.00 *1* Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200		0.00							
200									
HandFinish									
Hand Finishing	Memo 1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291 <u>M134487</u> Sikaflex expire date: <u>16112</u> 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 <u>RTU 598 M134524 16107</u> 3-Inspect for foreign object per QSI 024 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 <u>M134487</u> Sikaflex expire date: <u>16112</u> 5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: <u>M134487</u>	1.56							

1x 6 988 161656

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
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 Revision ID: Stop ***NS2***
 Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH
 Start Date: 5/4/2016 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 5/12/2016 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	QC5- Inspect part completeness to step on W/O	0.00				1			DAS 38 9-89 MAY 17 2016
210									
QC	Memo	0.02							
Quality Control	Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024								
220	Packaging	0.00				1			DAS 28 9-89 MAY 17 2016
220									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPPD205-634-041								
	Location: _____								
	PPP Rev: 144798								
	144798								
230	QC21- Final Inspection - Work Order Release	0.00							
230									
QC	Memo	0.10							
Quality Control									

SA 16/5/17

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
OTHER : ☐																									

Picklist Print

Friday, May 13, 2016 10:26:47 AM

Page 1

Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30
KJ IPP Rev P 10.02.19
per PAR09-043 EC verified by:DD
IPP Rev. O 06.02.28 Added paperwork EC
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q
10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS
PER ECN11-684 VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

ALS7-1032-130 AELS8-1032-130 Purchased No

Each 1,324.000

4

ALS7-1032-130

Rivnut

all 16/05/16

Location	Loc Qty	Loc Code
FG	50	
M128649	50	
FP001	43	
M128649	43	
st549	1231	
M128649	1231	

x4

AN310-6 Purchased No

Each 28.0000

2

AN310-6

Castellated Nut

all 16/05/16

Location	Loc Qty	Loc Code
ST331	28	
114523	8	
122459	20	

✓2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

Friday, May 13, 2016 10:26:47 AM

Page 2

Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

AN6-53

AN6-53

Bolt

Purchased

Each

5.0000

2

**

16/05/16

Location

Loc Qty

Loc Code

ST332

5

105289

1

M128773

4

Each

39.0000

6

**

AN960JD10L

NAS1149D0332J

Purchased

No

AN960.ID10L

Washer

Location

Loc Qty

Loc Code

CA

39

M129682

39

Each

0.0000

4

**

AN960JD616

NAS1149D0663J

Purchased

No

AN960.ID616

Washer

D2913

Manufactured

No

D2913

Doubler

Each

19.0000

1

**

Location

Loc Qty

Loc Code

ST013

19

106605

19

Each

7.0000

4

**

D3620-1

Manufactured

No

D3620-1

Bushing

Location

Loc Qty

Loc Code

Mezz

7

35001

7

B 146 221 (x1)
(x3)

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause			FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process	OTHER : _____							
Misidentified	☐	Past Due								

Picklist Print

Friday, May 13, 2016 10:26:48 AM

Page 3

Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

MS21042L3

Purchased

No

Each

2,105.000

2

MS21042L3

Nut

Location

Loc Qty

Loc Code

FP001

100

m133790

100

GA

612

m133790

3

m134360

609

ST303

1393

m134039

12

m134360

181

m134634

600

m134754

600

MS24665-300

Purchased

No

Each

72.0000

2

MS24665-300

COTTER PIN

Location

Loc Qty

Loc Code

GA

28

118234

28

ST288

44

m134738

44

MS24693S272

Purchased

No

Each

184.0000

2

MS24693S272

SCREW

Location

Loc Qty

Loc Code

ST292

184

m130799

184

Friday, May 13, 2016 10:26:48 AM

Shop Packet Print

Page 3

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER : _____							

Picklist Print

Friday, May 13, 2016 10:26:48 AM

Page 4

Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-08

MS27039-1-08

Screw

Purchased No

Each

212.0000

2

Location

Loc Qty

Loc Code

FP001

83

m128636

83

GA

73

125654

2

m128636

71

ST281

56

m134502

56

Each

179.0000

2

MS27039-1-11

MS27039-1-11

Screw

Purchased No

Location

Loc Qty

Loc Code

GA

20

125654

13

9662

7

ST280

159

124326

109

m134738

50

Each

23.0000

2

MS35489-35

MS35489-35

Grommet

Purchased No

Location

Loc Qty

Loc Code

ST269

23

m127306

23

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition			Completed By																		
							Lead hand / Supervisor Approval Verification																		
							QC / QA Coordinator Approval																		
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																	
OTHER : _____																									

Picklist Print

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Page 5

Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D4202-1	Manufactured	No	140	Each	368.0000	20	20
---------	--------------	----	-----	------	----------	----	----

D4202-1

Spacer

**

16-5-12

Location	Loc Qty	Loc Code
----------	---------	----------

LG001	368	
141708	368	

D2580-1

Manufactured	No	110	Each	4.0000
--------------	----	-----	------	--------

D2580-1

205 Bent Tube

**

20
DP 16-5-12

Location	Loc Qty	Loc Code
----------	---------	----------

LG002	4	
145010	4	

D2576-3

Manufactured	No	140	Each	16.0000
--------------	----	-----	------	---------

D2576-3

Step (Machining Detail)

**

BE 16-05-12

Location	Loc Qty	Loc Code
----------	---------	----------

LG001	16	
136730	1	
142485	15	

D2855

Manufactured	No	200	Each	45.0000
--------------	----	-----	------	---------

D2855

Cap

**

16/05/16

Location	Loc Qty	Loc Code
----------	---------	----------

FP001	45	
134027	17	
137568	28	

X1

Picklist Print

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Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

AN3-5A Purchased No 200 Each 326.0000 2 2

AN3-5A

Bolt

**

16/05/16

Location	Loc Qty	Loc Code
FP001	26	
m133686	2	
m134055	24	
ST350	300	
m134502	300	

XZ

NAS1149D0332J Purchased No 200 Each 1,184.0000 2 2

NAS1149D0332.J

Washer

**

16/05/16

Location	Loc Qty	Loc Code
CA	6	
m129682	6	
FP001	26	
m133988	26	
GA	60	
m132677	60	
ST260a	1000	
m134502	1000	
ST264	92	
m133988	92	

XZ

Picklist Print

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Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130 AELS8-1032-130 Purchased No 200 Each

1,328.000 50 50

ALS7-1032-130 ✓ ALS41032-130 / M134502
Rivnut

****** 16/05/16

Location	Loc Qty	Loc Code
FG	50	
M128649	50	
FP001	43	
M128649	43	
st549	1235	
M128649	1235	

AN3C4A Purchased No 200 Each

955.0000 50 50

AN3C4A
Bolt

****** 16/05/16

Location	Loc Qty	Loc Code
FG	20	
122814	20	
FP001	323	
M133440	7	
M134396	41	
M134509	246	
M134606	29	
OVER002	500	
M134502	200	
M134676	300	
ST350	112	
M134134	18	
M134396	94	

x.50

Picklist Print

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May 04, 2016 11:16:31 AM

Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

200

Each

3,073.000

50

50

NAS1149C0332R

WASHER

**

ll 16/03/16

Location

Loc Qty

Loc Code

FP001

1582

m132262

4

m132930

1004

m134063

446

m134073

128

GA

225

m133284

225

ST266

1266

m134474

166

m134574

1000

m134654

100

X50

D3566-13

Manufactured

No

200

Each

32.0000

1

1

D3566-13

Gasket Fwd

**

ll 16/05/16

Location

Loc Qty

Loc Code

FG

2

98908

2

FP001

30

138858

2

144947

28

X\

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Shop Packet Print

Page 8

Picklist Print

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Page 9

Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D3566-5

Manufactured No

200

Each

31.0000

1

1

D3566-5

Gasket Center Aft

lll 16/03/16

Location

Loc Qty

Loc Code

FG

2

139236

2

FP001

29

140942

3

144273

26

lll

D3566-1

Manufactured No

200

Each

34.0000

2

2

D3566-1

Gasket Aft / Fwd

lll 16/05/16

Location

Loc Qty

Loc Code

FG

8

117012

4

139221

4

FP001

26

139221

4

140819

1

142848

21

x2

D3564-11

Manufactured No

200

Each

8.0000

1

1

D3564-11

Wearplate Aft

lll 16/05/16

Location

Loc Qty

Loc Code

FG

4

77056

4

FP002

4

144203

4

x1

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Page 10

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Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D3564-13

Manufactured No

200

Each

3.0000

1

1

D3564-13

**

Wearpad Fwd

JL 16/05/16

LocationLoc QtyLoc Code

FG

2

B144946

x1

89044

2

FP001

1

137738

1

D3564-9

Manufactured No

200

Each

14.0000

1

1

D3564-9

**

Wearplate Fwd

JL 16/03/16

LocationLoc QtyLoc Code

FG

6

76950

4

88407

2

FP002

8

142431

8

D3564-5

Manufactured No

200

Each

28.0000

1

1

D3564-5

**

Wearplate Center

JL 16/05/16

LocationLoc QtyLoc Code

FG

3

34806

1

89048

2

FP002

25

144896

25

x1

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Work Order ID: 145190

145190

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 5/4/2016

Required Date: 5/12/2016

Start Qty: 1.00

Required Qty: 1.00

D2594-3 Manufactured No 200 Each 474.0000 16 16

D2594-3

O-Ring

**

lll 16/05/16

Location

Loc Qty

Loc Code

FP001

474

~~B145974~~

134838

116

1
x16

135859

24

137829

30

138060

2

140770

2

141703

300

D2594-1 Manufactured No 200 Each 171.0000 16 16

D2594-1

Plug

**

lll 16/05/16

Location

Loc Qty

Loc Code

FP001

171

119830

68

B195971

134804

16

135914

13

141080

14

142475

28

42807

25

88922

7

x8

x8

✓

LIST OF MATERIALS						PART NUMBER	DESCRIPTION
ITEM	QTY -041	QTY -045	QTY -047	QTY -049			
1	X					D2580-041	SKIDTUBE ASSEMBLY
2		X				D2580-045	SKIDTUBE ASSEMBLY
3			X			D2580-047	SKIDTUBE ASSEMBLY
4				X		D2580-049	SKIDTUBE ASSEMBLY
20	1	1	1	1		D2500-1-190	EXTRUSION
21			16	16		D2570	BUSHING
22	1	1	1	1		D2576-3	STEP
23		4				D2579	SPACER
24	16	16	8	8		D2594-1	PLUG
25	16	16	8	8		D2594-3	O-RING
26	1	1	1	1		D2596	205 WEB
27	1	1	1	1		D2855	AFT CAP
28	1	1				D3564-5	WEARSHOE
29	1	1				D3564-9	WEARSHOE
30	1	1				D3564-11	WEARSHOE
31	1	1				D3564-13	WEARSHOE
32	2	2				D3566-1	GASKET
33	1	1				D3566-5	GASKET
34	1	1				D3566-13	GASKET
35	20	20	24	24		D4202-1	SPACER
36			1			D4406-041	WEARPLATE ASSEMBLY
37			1			D4406-043	WEARPLATE ASSEMBLY
37				1		D5061-1	FWD WEARPLATE
37				1		D5061-3	AFT WEARPLATE
50	50	50				ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
51	50	50				AN3C4A	BOLT
52	2	2	2	2		AN3-5A	BOLT
53			8	8		AN4-45A	BOLT
54	50	50				NAS1149C0332R	WASHER (AN960C10L)
55	2	2	2	2		NAS1149D0332J	WASHER (AN960JD10L)
56			8	8		MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

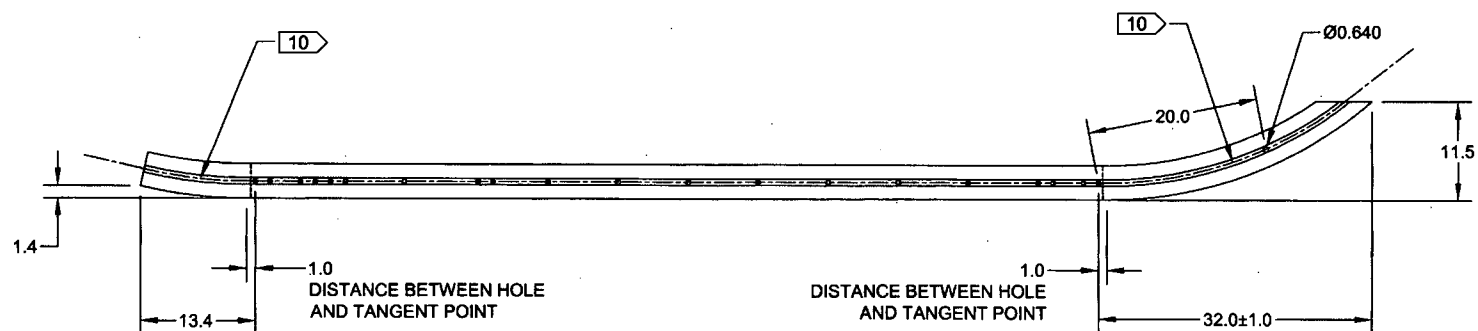
- MATERIAL: N/A
- FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3 POWDER COAT ASSEMBLY (-045) GREEN SANDTEX (REF 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: NONE
- WEIGHT: D2580-041 = 34.5 lbs
D2580-045 = 34.5 lbs
D2580-047 = 45.1 lbs
D2580-049 = 32.0 lbs
- WELDING PER DART QSI 004.
- INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/291.
- INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047/-049)
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

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2014-04-29

20160503

SA
145189

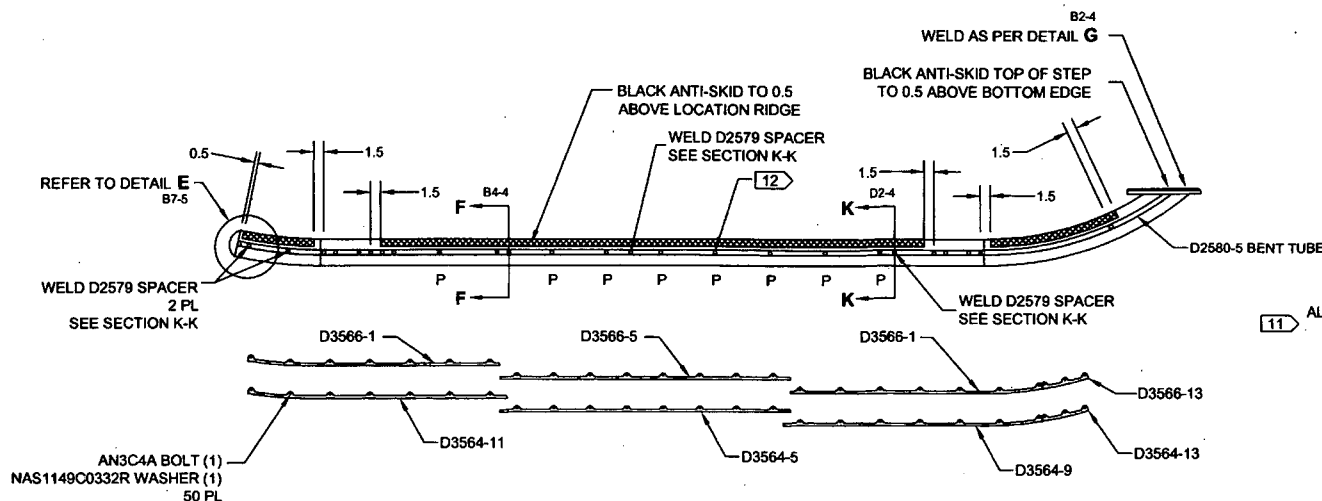
G	ADDED -049, -047 WEIGHT UPDATED PER DSI 9598	AJS	14.04.09
F	INCORPORATE DEO D2580-E-1 PER PAR12-218	DC	13.06.20
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION		BY DATE
DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	A.P.	DRAWING NO.	REV. G
MFG. APPR.	NA	D2580	SHEET 1 OF 9
APPROVED	NA	TITLE	SCALE
DE APPR.	NA	205 SKIDTUBE ASSEMBLY	NTS
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D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

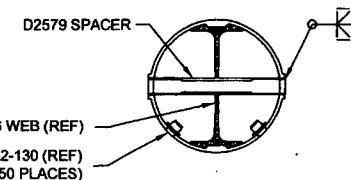
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MFG. APPR.	M	D2580	SHEET 3 OF 9
APPROVED	M	TITLE	SCALE
DE APPR.	M	205 SKIDTUBE ASSEMBLY	NTS
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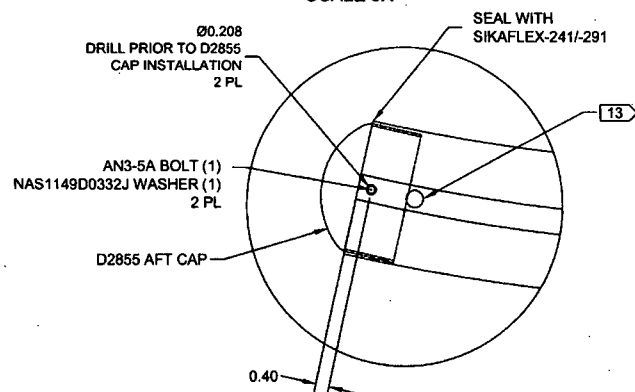
D2580-045 ASSEMBLY DETAIL

SECTION K-K D5-4
SCALE 5X

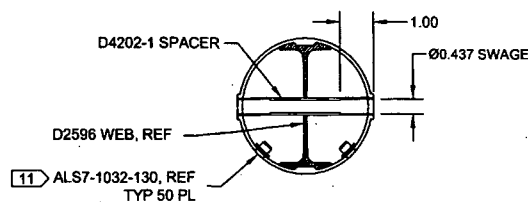


AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (4 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. DO NOT C'BORE

DETAIL E D7-4
SCALE 5X

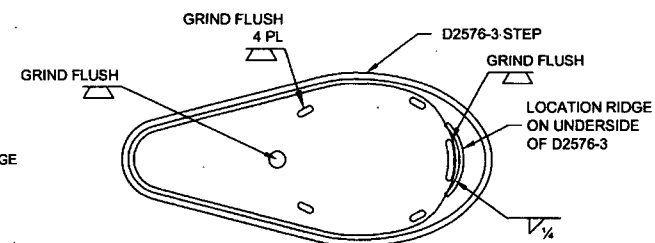


SECTION F-F D5-4
SCALE 5X



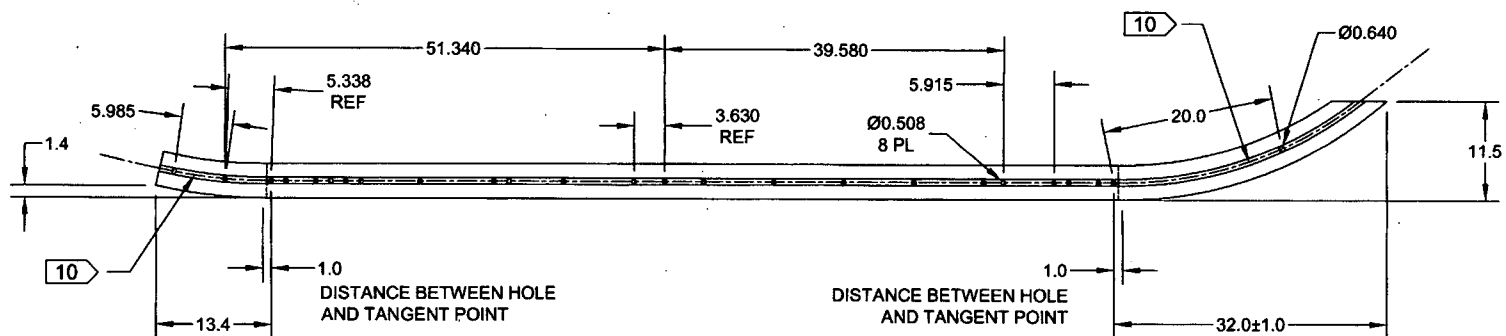
AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (20 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002

DETAIL G D3-4
SCALE 5X



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2014-04-29

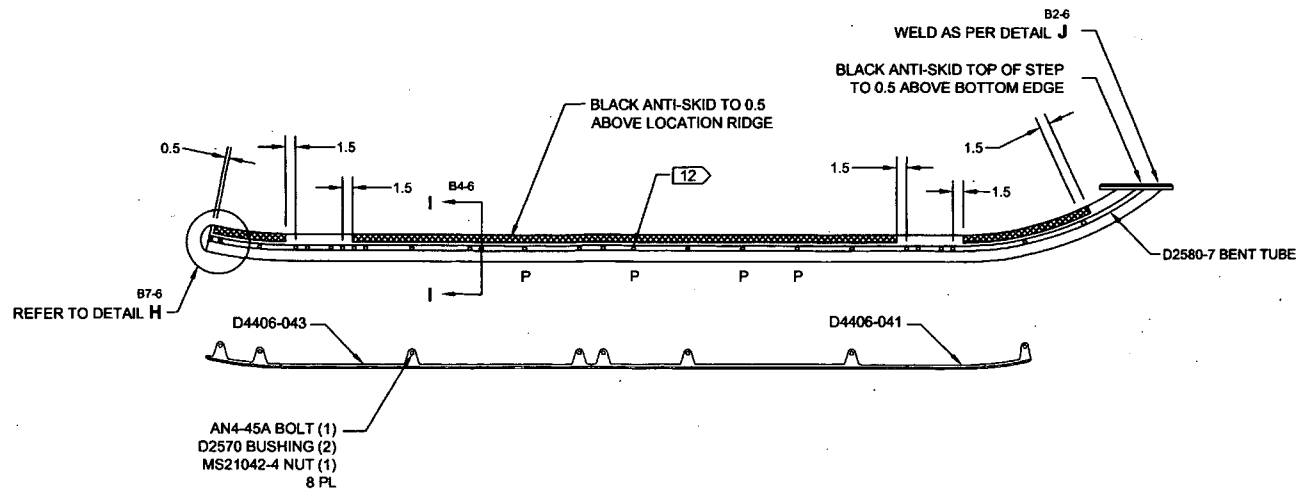
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MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 4 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
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D2580-5 BENT TUBE
(MAKE FROM D2580-101 TUBE)

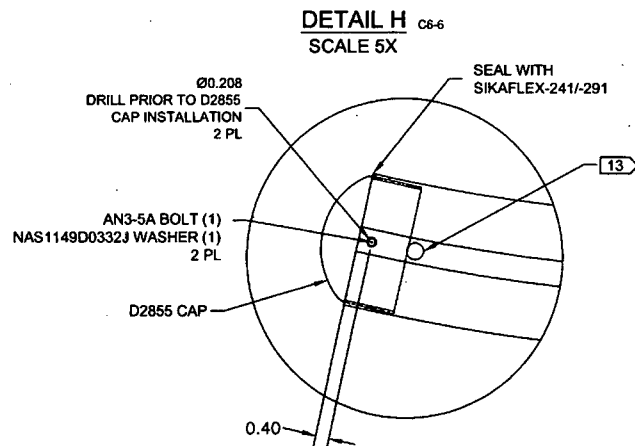
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MFG. APPR.		D2580	SHEET 5 OF 9
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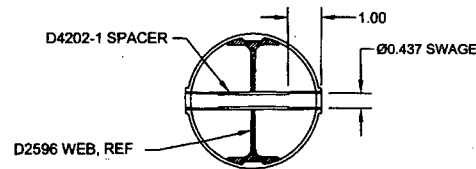


D2580-047 ASSEMBLY DETAIL

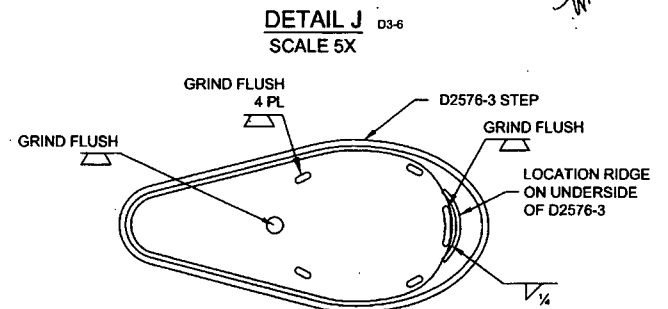
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2014-04-29



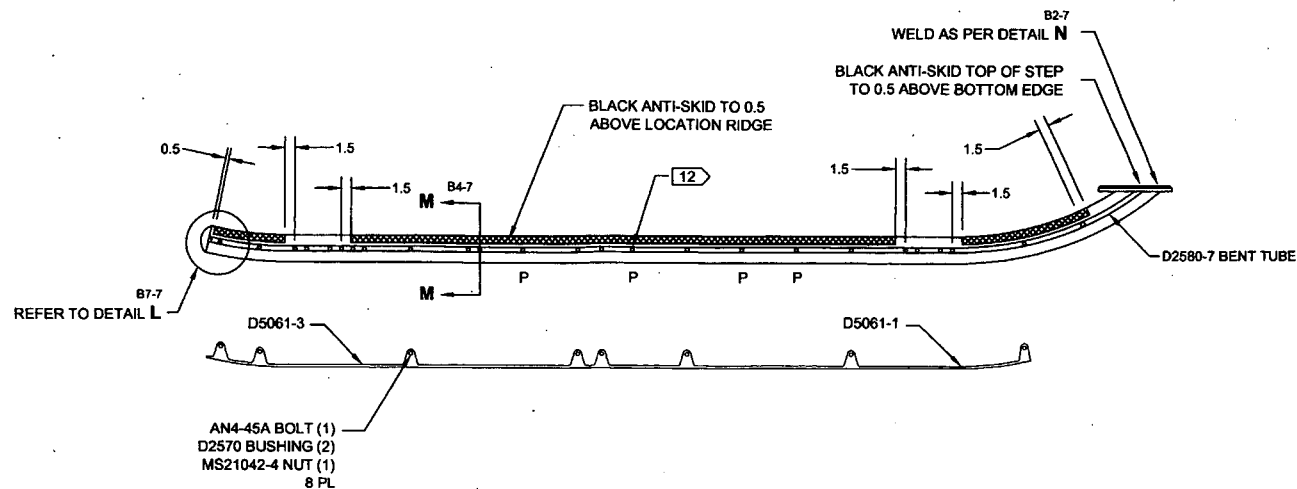
SECTION I-I
SCALE 5X



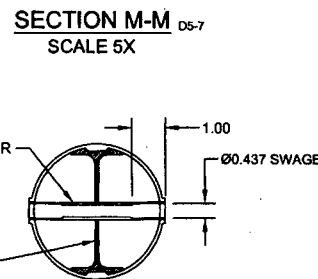
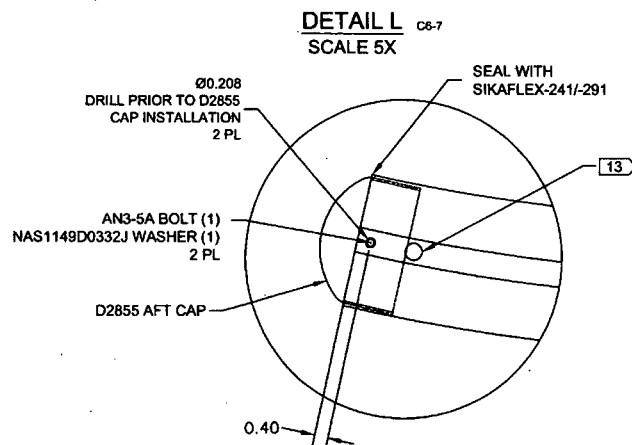
AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (24 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002



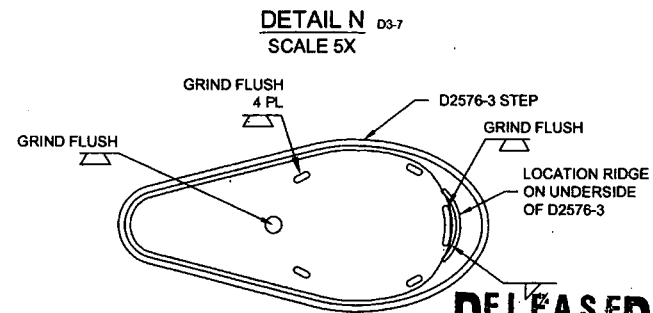
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DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
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MFG. APPR.	N	D2580	SHEET 6 OF 9
APPROVED	N	TITLE	SCALE
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D2580-049 ASSEMBLY DETAIL

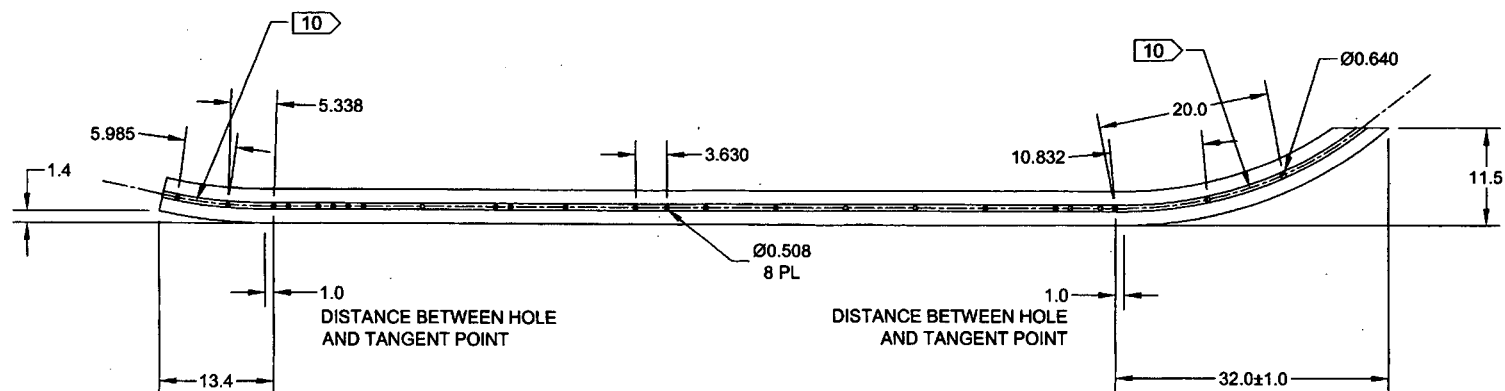


AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (24 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002



RELEASED
2014-04-29

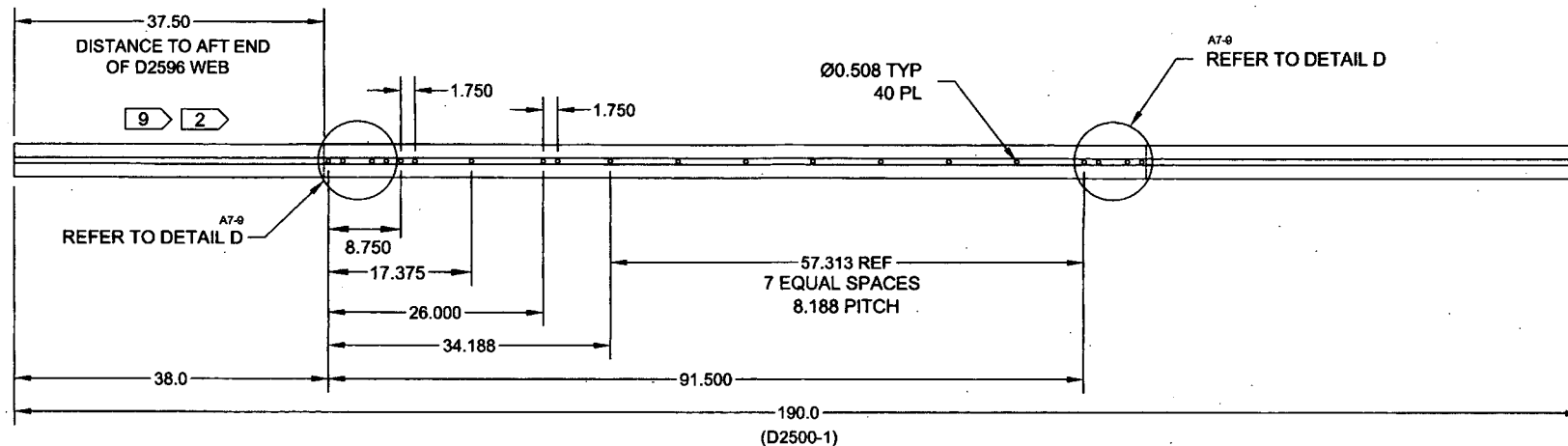
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MFG. APPR.		D2580	SHEET 7 OF 9
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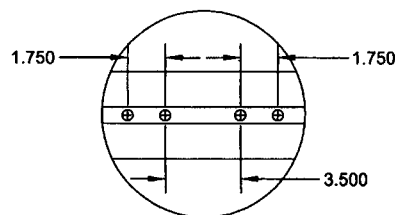
D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)

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MFG. APPR.	[Signature]	D2580	SHEET 8 OF 9
APPROVED	[Signature]	TITLE	SCALE
DE APPR.	[Signature]	205 SKIDTUBE ASSEMBLY	NTS
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D2580-101 TUBE



DETAIL D
SCALE 5X

C3-9
C7-9

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2014-04-29
WMD

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MFG. APPR.	AA	D2580	SHEET 9 OF 9
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DART AEROSPACE LTD.
1270 Aberdeen Street
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Tel: 1 613 632 5200
Fax: 1 613 632 5246

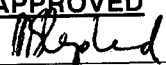
e-mail: heli@dartaero.com
<http://www.dartaero.com>

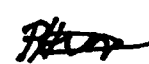
INSTALLATION INSTRUCTIONS

D412-673

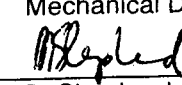
Electric Step Adaptation Kit

BELL 212 / 412 MODELS

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION BRANCH DAO # 01-O-01	
APPROVED	
BY:	 D. SHEPHERD (DE # 02)
DATE:	08.04.23
CERT. NO.:	SH96-88
ISSUE NO.:	3

Prepared By: 
P. Hum
Mechanical Designer

Checked By: 
M. Bellavance
Mechanical Designer

Released By: 
D. Shepherd, P. Eng.
DE # 02

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Revision: C
Date: 08.04.23

Revision Record

Revision	Issue Date	Description
A	99.09.16	New Issue
B	07.08.10	Update format; Simplify, reorganize installation procedure; Incorporate DSI 9374
C	08.04.23	Revise Table 3 and 4 for inboard orientation.

1.0 INTRODUCTION

These instructions cover the installation of the Dart D412-673-011 Electric Step Adaptation Kit, which modifies the Dart D205-634-011 Skidtube Kit to allow for the installation of the BHT 212-706-105-003 (or similar) Power Step Kit on either the LH or RH skidtube. The BHT Power Step Kit is installed per the Aircraft Maintenance Manual and is compatible with the Dart D205-665-015 Cable Guard. **Figure 1.1** shows the standard installation of the BHT Power Step Kit on the Dart D205-634-011 Skidtube Kit and **Figure 1.2** shows the installation of the BHT Power Step Kit on the Dart D205-634-011 Skidtube Kit with the D205-665-015 Cable Guard installed. The components in the Dart kits are as defined in Section 6.0 of these instructions.

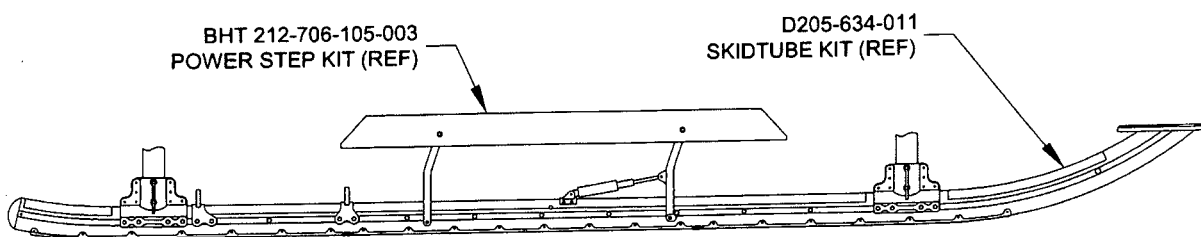


Figure 1.1 – BHT Power Step Kit Installed on the Standard Dart D205-634-011 Skidtube

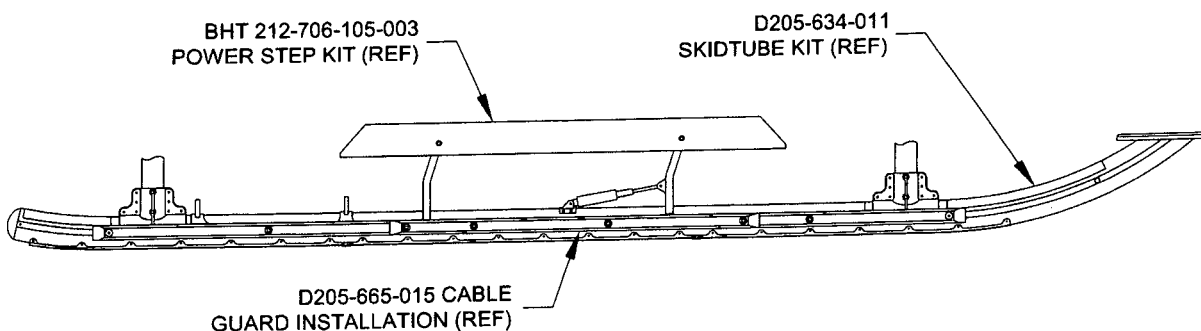


Figure 1.2 – BHT Power Step Kit Installed on the Dart D205-634-011 Skidtube With the D205-665-015 Cable Guard Installed

2.0 GENERAL NOTES

COMPATIBILITY

Compatibility of this installation with the aircraft is the **responsibility of the installer**. Ensure that this installation does not conflict with a previous modification.

WORKMANSHIP

Unless otherwise stated, all workmanship should be to the standards set by the Aircraft Maintenance Manual. It is acceptable to use longer or shorter bolts or screws in order to ensure 1.5-4 threads in safety for all fasteners. All holes should be de-burred and touched up with zinc chromate primer after drilling.

3.0 TOOLS

The DT8393-1/-2/-3 tools that are shipped with the kit are used for transfer marking and drilling the holes used to adapt the Dart skidtube for installation of the BHT Power Step Kit and must be returned to Dart once the installation has been performed. Note that tool DT8393-1 is always used on the LH side of the skidtube and tool DT8393-2 is always used on the RH side of the skidtube. The arrows on the face of the tools should always point forward.

4.0 INSTALLATION PROCEDURE

4.1 Preparation

- 4.1.1 If the skidtube is already installed and in service, remove the skidtube from the aircraft in accordance with ICA-D205-634.
- 4.1.2 Temporarily remove the forward D2571 and D2572 Saddles and any D2594 Plugs from the skidtube that will interfere with installation of the DT8393-1/-2/-3 tools.
- 4.1.3 Check for corrosion and mechanical damage of the skidtube in accordance with ICA-D205-634 and repair/replace as required.
- 4.1.4 The D412-673-011 Electric Step Adaptation Kit can be installed on either the LH or RH skidtube of the aircraft and can also be made compatible with the Dart D205-665-015 Cable Guard Kit.
 - a) For the standard installation of the D412-673-011 Electric Step Adaptation Kit on the LH and/or RH skidtube, follow the installation procedure provided in Section 4.2. For standard installations, the step will be angled outboard.
 - b) For installation of the D412-673-011 Electric Step Adaptation Kit compatible with the Dart D205-665-015 Cable Guard Kit on the LH and/or RH skidtube, follow the installation procedure provided in Section 4.3. When the power step is made to be compatible with the D205-665-015 Cable Guard Kit, the step will be angled inboard.

4.2 Standard Installation of the D412-673-011 Electric Step Adaptation Kit

Refer to **Figure 4.1**, **Views A-A** and **B-B** and **Sections C-C** through **H-H**

4.2.1 For installation of the D412-673-011 kit on the LH skidtube, follow the steps below and refer to **Table 1** for each of the STA lines indicated in **Table 1**. For installation of the D412-673-011 kit on the RH skidtube, follow the steps below and refer to **Table 2** for each of the STA lines indicated in **Table 2**.

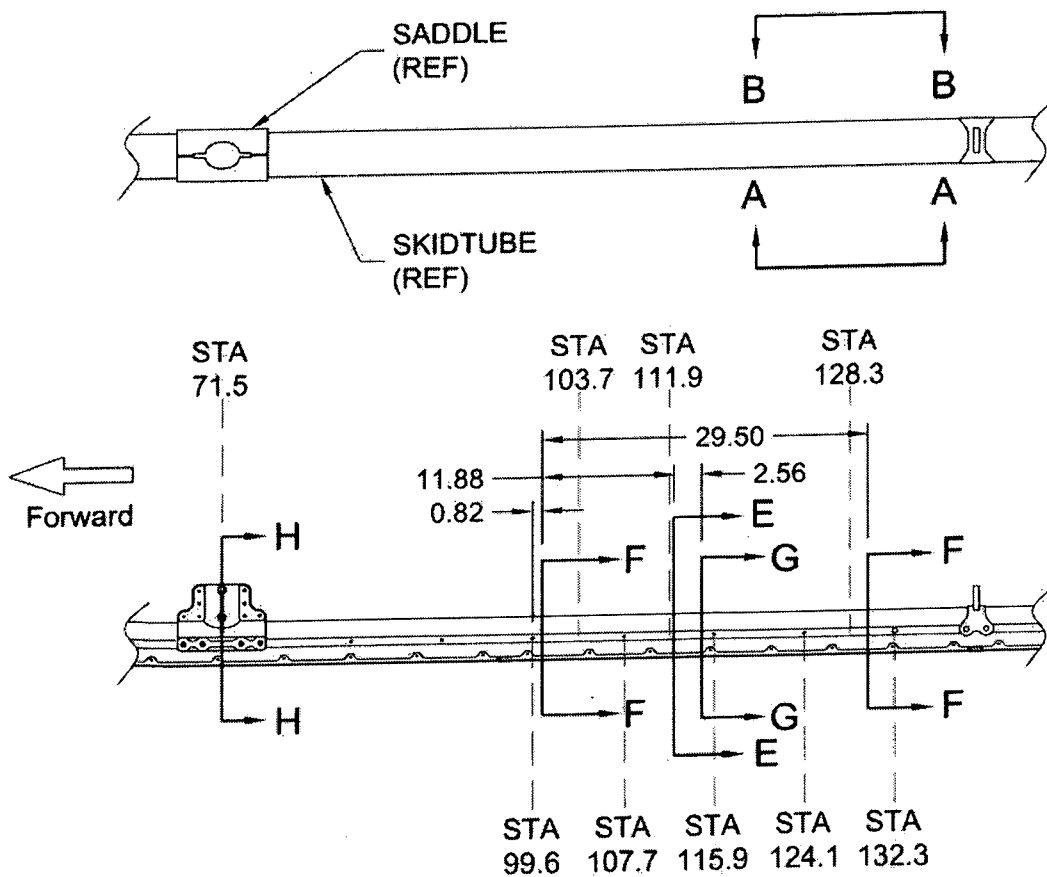
- Position the DT8393-1 tool on the LH side of the skidtube and DT8393-2 on the RH side of the skidtube as shown in **Views A-A** and **B-B** at the STA line indicated **Table 1/2**.
- Install the DT8393-3 Pins in the pin holes indicated in **Table 1/2** as shown in **Section C-C**. Note that the pin holes should align with existing holes in the skidtube.
- Transfer mark the holes indicated in **Table 1/2** from the DT8393-1 and DT8393-2 tools onto the skidtube.
- Remove the tools. Double check the hole locations per **Figure 4.1**.
- Re-install the tools and drill Ø0.188" (4.80 mm) pilot holes at the marked locations.
Note: Before drilling the holes at STA 128.3, mark the holes on the skidtube and test fit the BHT 212-706-105-003 Power Step Kit on the skidtube in the retracted and extended positions without securing the aft arm of the step to the skidtube. Ensure the holes in the aft arm align with the marked holes on the skidtube. If the holes do not align, mark the correct longitudinal position of the aft arms on the skidtube, reposition the DT8393-1/-2 tools on the skidtube so that holes listed in **Table 1/2** for STA 128.3 align with the new longitudinal positions, transfer mark the new hole locations and proceed to drill the skidtube.
- Enlarge the holes to the finish hole size listed in **Table 1/2**. Note that the tolerance on all holes is $\begin{matrix} +0.006" & (+0.15mm) \\ -0.000" & (-0.00mm) \end{matrix}$.
- Deburr the holes and touch up with zinc chromate primer.
- Install the hardware indicated in **Table 1/2** in the drilled holes.
Note: When installing the D3620-1 Bushings at STA 103.7 and 128.3, refer to **Section D-D**.

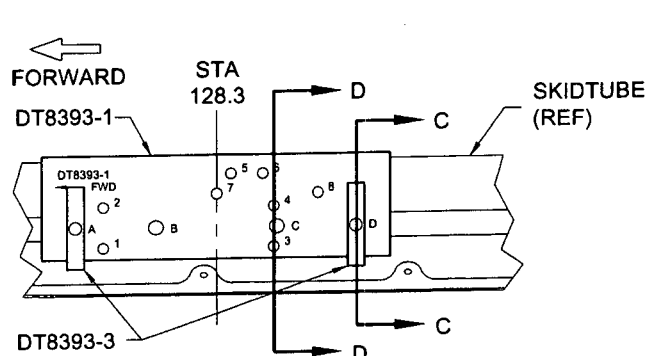
Table 1 – Standard Installation on the LH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	none	17	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	1	11	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		8	none	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	3	13	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

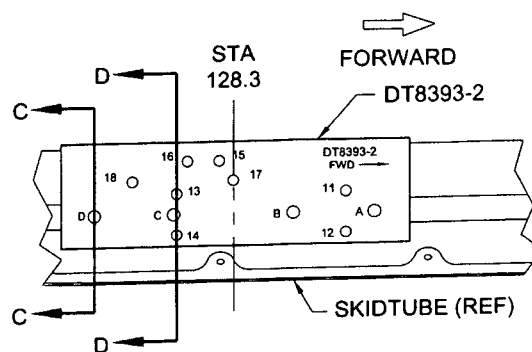
Table 2 – Standard Installation on the RH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	7	none	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	2	12	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		none	18	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	4	14	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

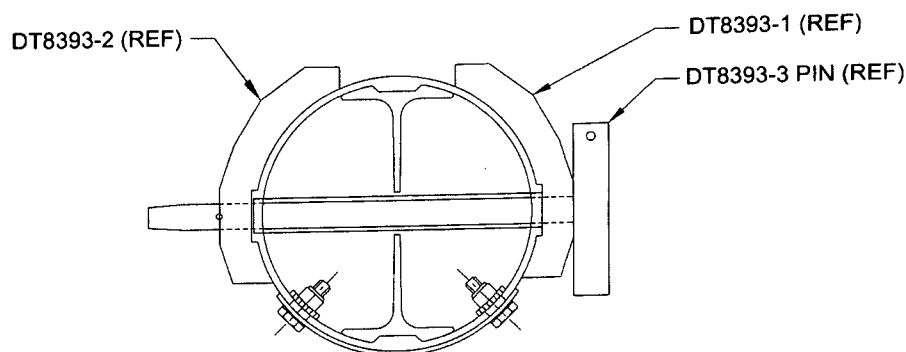




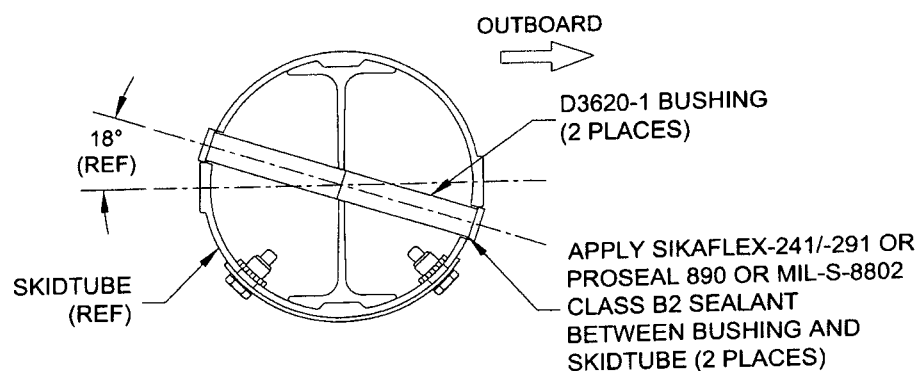
View A-A – Typical DT8393-1 Position
(See Figure 4.1; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)



View B-B – Typical DT8393-2 Position
(See Figure 4.1; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)

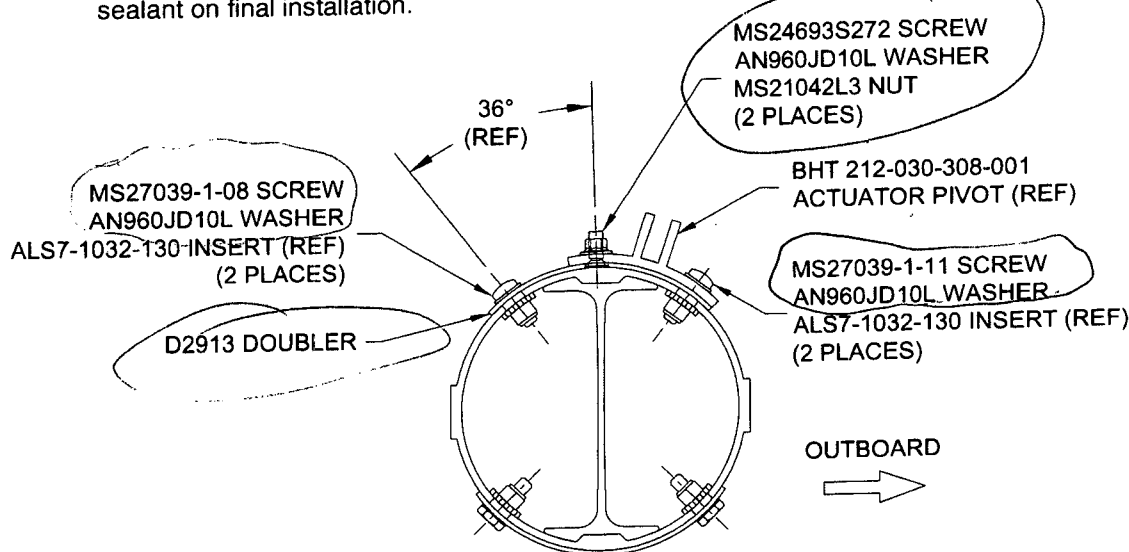


Section C-C – Typical DT8393-3 Pin Position
(See View A-A and B-B)



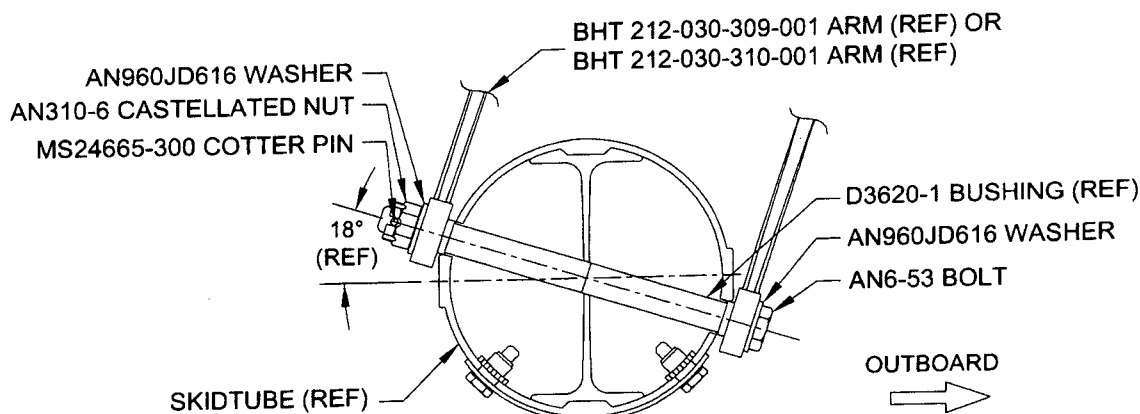
Section D-D – Bushing Installation
(See View A-A and B-B)

- 4.2.2 a) Install the D2913 Doubler onto the BHT 212-030-308-001 actuator pivot using MS24693 screws as shown in **Section E-E**.
b) Install the assembly onto the skidtube using MS27039 screws as shown in **Section E-E**. Fasteners should be installed with Sikaflex-241/291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant on final installation.



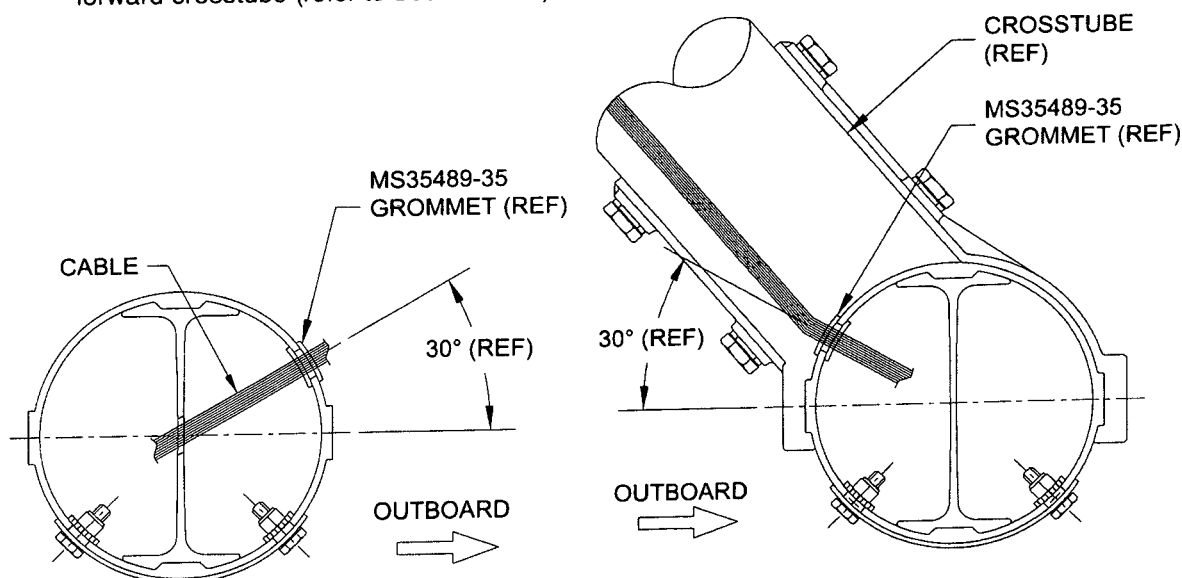
Section E-E – Doubler Installation
(See Figure 4.1; Approximately STA 111.9)
(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

- 4.2.3 Install the electric step arms to the skidtube as shown in **Section F-F**. Note that the step should be installed so that it is angled toward the outboard side of the skidtube as shown in **Section F-F**. Ensure all nuts are installed on the inboard side of the skidtube. It is acceptable to replace the AN6 bolts with longer or shorter AN6 bolts as required and/or install extra AN960JD616 washers under the nut to ensure proper installation of the cotter pin.



Section F-F – Electric Step Arm Installation
(See Figure 4.1; Approximately STA 100.4 and 130.0)
(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

- 4.2.4 Route the cabling from the step into the skidtube through the skidtube grommet at STA 114.8, through the I-beam web to the inboard side of the skidtube (refer to **Section G-G**), forward to the forward crosstube, out of the skidtube through the skidtube grommet at STA 71.5 and into the forward crosstube (refer to **Section H-H**).



Section G-G – Cable Routing Into Skidtube
(See **Figure 4.1**; Approximately STA 114.8)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

Section H-H – Cable Routing Out of Skidtube
(See **Figure 4.1**; Approximately STA 71.5)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

- 4.2.5 Complete the installation of the BHT Power Step Kit per the Aircraft Maintenance Manual.
- 4.2.6 Re-install the forward D2571/D2572 Saddles and D2594 Plugs onto the skidtube assembly, and re-install the skidtube assembly onto the aircraft per ICA-D205-634 (see **Figure 1.1** for the installed step).

4.3 Cable Guard Compatible Installation of the D412-673-011 Electric Step Adaptation KitRefer to **Figure 4.2, Views M-M and N-N** and **Sections P-P** through **U-U**

- 4.3.1 For installation of the D412-673-011 kit on the LH skidtube, follow the steps below and refer to **Table 3** for each of the STA lines indicated in **Table 3**. For installation of the D412-673-011 kit on the RH skidtube, follow the steps below and refer to **Table 4** for each of the STA lines indicated in **Table 4**.

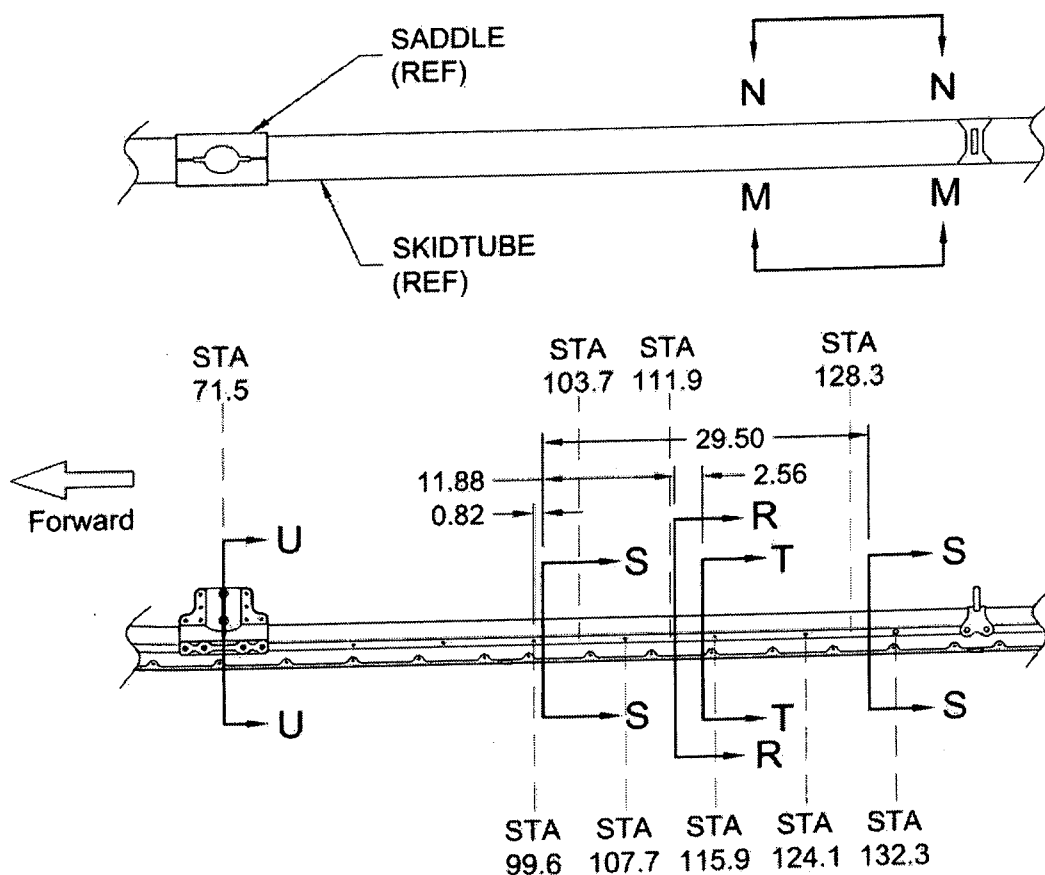
- Position the DT8393-1 tool on the LH side of the skidtube and DT8393-2 on the RH side of the skidtube as shown in **Views M-M and N-N** at the STA line indicated **Table 3/4**.
- Install the DT8393-3 Pins in the pin holes indicated in **Table 3/4** as shown in **Section P-P**. Note that the pin holes should align with existing holes in the skidtube.
- Transfer mark the holes indicated in **Table 3/4** from the DT8393-1 and DT8393-2 tools onto the skidtube.
- Remove the tools. Double check the hole locations per **Figure 4.2**.
- Re-install the tools and drill Ø0.188" (4.80 mm) pilot holes at the marked locations.
Note: Before drilling the holes at STA 128.3, mark the holes on the skidtube and test fit the BHT 212-706-105-003 Power Step Kit on the skidtube in the retracted and extended positions without securing the aft arm of the step to the skidtube. Ensure the holes in the aft arm align with the marked holes on the skidtube. If the holes do not align, mark the correct longitudinal position of the aft arms on the skidtube, reposition the DT8393-1/-2 tools on the skidtube so that holes listed in **Table 3/4** for STA 128.3 align with the new longitudinal positions, transfer mark the new hole locations and proceed to drill the skidtube.
- Enlarge the holes to the finish hole size listed in **Table 3/4**. Note that the tolerance on all holes is $\begin{matrix} +0.006" & (+0.15mm) \\ -0.000" & (-0.00mm) \end{matrix}$.
- Deburr the holes and touch up with zinc chromate primer.
- Install the hardware indicated in **Table 3/4** in the drilled holes.
Note: When installing the D3620-1 Bushings at STA 103.7 and 128.3, refer to **Section Q-Q**.

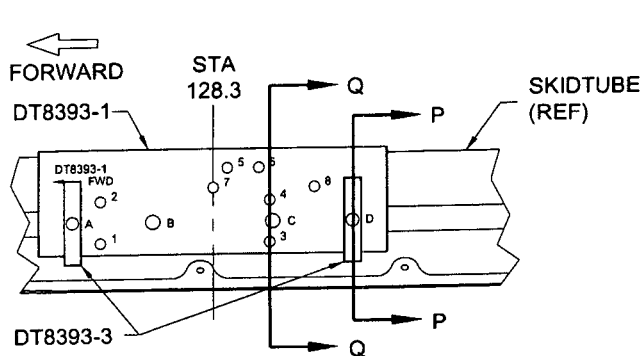
Table 3 – Cable Guard Compatible Installation on the LH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	none	17	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	2	12	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		none	18	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	4	14	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

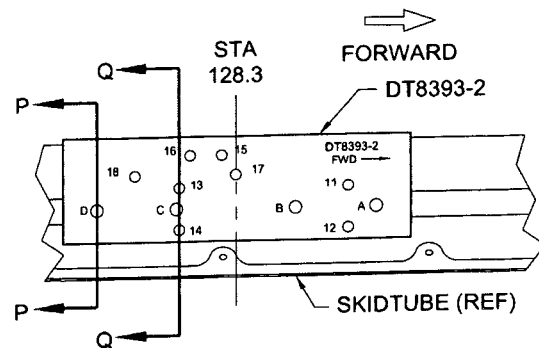
Table 4 – Cable Guard Compatible Installation on the RH Skidtube

STA Lines	Pin Holes	Drill Holes		Pilot Hole Size	Finish Hole Size	Drill Through I-Beam Web	Install
		DT8393-1	DT8393-2				
71.5	B, C	7	none	0.188" (4.80 mm)	0.438" (11.10 mm)	No	MS35489-35 Grommet (1)
103.7	A, D	1	11	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)
111.9	A, D	5, 6	15, 16	0.188" (4.80 mm)	0.297" (7.50 mm)	No	ALS7-1032-130 Insert (4)
		8	None	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	MS35489-35 Grommet (1)
128.3	A, D	3	13	0.188" (4.80 mm)	0.438" (11.10 mm)	Yes	D3620-1 Bushing (2)

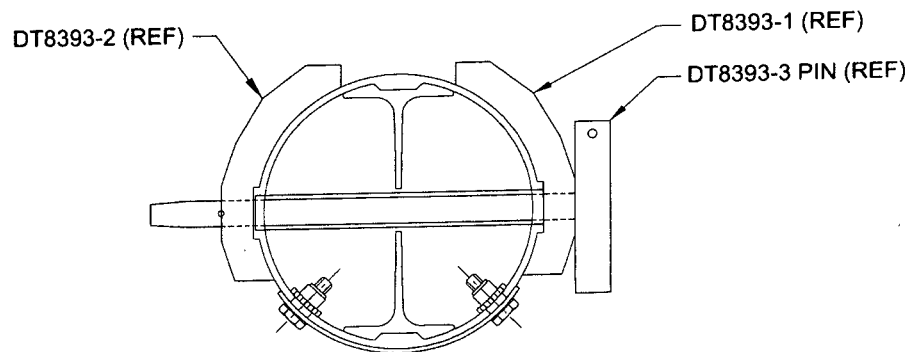
**Figure 4.2 – Applicable STA Lines**
(LH Skidtube Shown, RH Opposite)



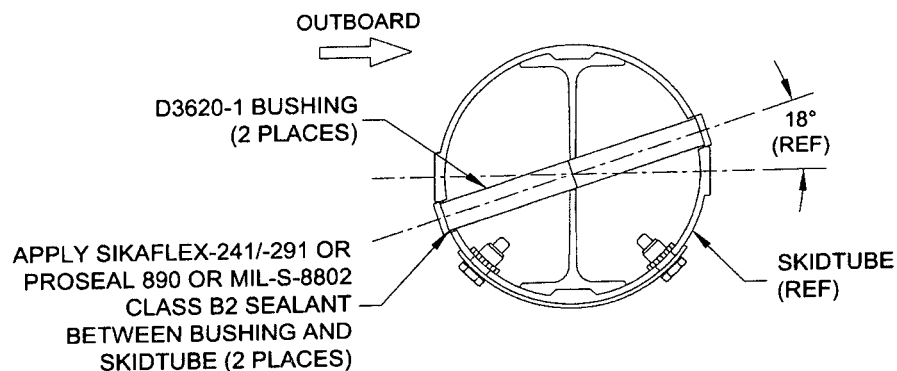
View M-M – Typical DT8393-1 Position
(See Figure 4.2; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)



View N-N – Typical DT8393-2 Position
(See Figure 4.2; Tool Alignment at STA 128.3
Shown, Other STA Positions are Similar)

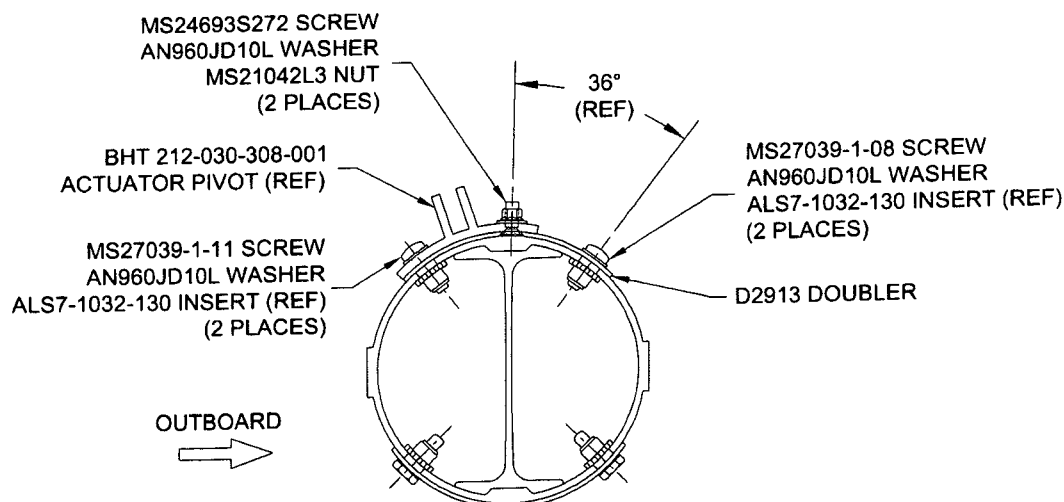


Section P-P – Typical DT8393-3 Pin Position
(See View M-M and N-N)



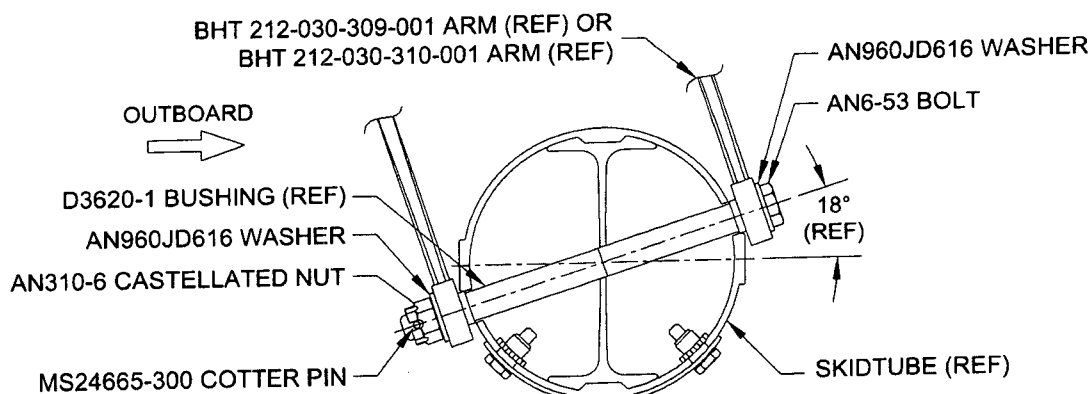
Section Q-Q – Bushing Installation
(See View M-M and N-N)

- 4.3.2 a) Install the D2913 Doubler onto the BHT 212-030-308-001 actuator pivot using MS24693 screws as shown in **Section R-R**.
b) Install the assembly onto the skidtube using MS27039 screws as shown in **Section R-R**. Fasteners should be installed with Sikaflex-241/291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant on final installation.



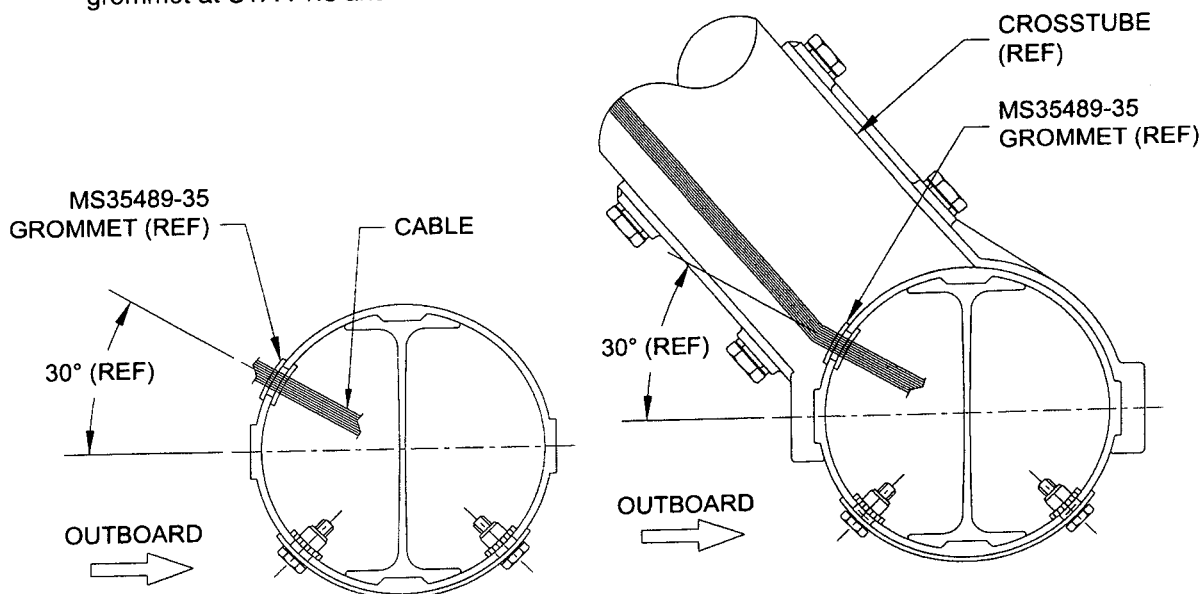
Section R-R – Doubler Installation
(See **Figure 4.2**; Approximately STA 111.9)
(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

- 4.3.3 Install the electric step arms to the skidtube as shown in **Section S-S**. Note that the step should be installed so that it is angled toward the inboard side of the skidtube as shown in **Section S-S**. Ensure all nuts are installed on the inboard side of the skidtube. It is acceptable to replace the AN6 bolts with longer or shorter AN6 bolts as required and/or install extra AN960JD616 washers under the nut to ensure proper installation of the cotter pin.



Section S-S – Electric Step Arm Installation
(See **Figure 4.2**; Approximately STA 100.4 and 130.0)
(LH Skidtube Installation Shown, RH Skidtube Installation Opposite)

- 4.3.4 Route the cabling from the step into the skidtube through the skidtube grommet at STA 114.8 (refer to **Section T-T**), forward to the forward crosstube, out of the skidtube through the skidtube grommet at STA 71.5 and into the forward crosstube (refer to **Section U-U**).



Section T-T – Cable Routing Into Skidtube
(See **Figure 4.2**; Approximately STA 114.8)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

Section U-U – Cable Routing Out of Skidtube
(See **Figure 4.2**; Approximately STA 71.5)
(LH Skidtube Installation Shown, RH Skidtube
Installation Opposite)

- 4.3.5 Complete the installation of the BHT Power Step Kit per the Aircraft Maintenance Manual.
- 4.3.6 Re-install the forward D2571/D2572 Saddles and D2594 Plugs onto the skidtube assembly, and re-install the skidtube assembly onto the aircraft per ICA-D205-634 (see **Figure 1.2** for the installed step).

5.0 WEIGHT AND BALANCE

The weight added to the Skidtube by the D412-673-011 Electric Step Adaptation Kit is negligible.

6.0 PARTS LISTS

Qty -011	Part Number	Description
X	D412-673-011	Electric Step Adaptation Kit
1	D2913	Doubler
4	D3620-1	Bushing
4	ALS7-1032-130	Insert
2	AN6-53	Bolt (or AN6C53)
2	AN310-6	Castellated Nut (or AN310C6)
6	AN960JD10L	Washer
4	AN960JD616	Washer (or AN960C616)
2	MS21042L3	Nut
2	MS24665-300	Cotter Pin (or AN380C3-3)
2	MS24693S272	Screw
2	MS27039-1-08	Screw
2	MS27039-1-11	Screw
2	MS35489-35	Grommet
1*	DT8393-1	Tool
1*	DT8393-2	Tool
2*	DT8393-3	Pin

* Tools listed for reference only. Do not install.